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<110> McCarthy, Sean A.
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<151> 1997-04-17

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By Arr

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cca	gtt	act	gaa	agc	atc	tta	acc	cct	cac	atc	ccg	gct	ctg	gat	ggt	192
Pro	Val 50	Thr	Glu	Ser	Ile	Leu 55	Thr	Pro	His	Ile	Pro 60	Ala	Leu	Asp	Gly	
act	cgg	cac	aga	gat	cga	aac	cac	ggt	cat	tac	tca	aac	cat	gac	ttg	240
Thr 65	Arg	His	Arg	Asp	Arg 70	Asn	His	Gly	His	Tyr 75	Ser	Asn	His	Asp	Leu 80	
~~~	taa	020	22t	ata	gga	2012	CC3	cac	act	220	ato	tca	cat	at a	222	288
					Gly											200
<i>1</i>		02.7		85		3			90					95	7	
ggg	cat	gaa	gga	gac	ccc	tgc	cta	cga	tca	tca	gac	tgc	att	gaa	aaa	336
Gly	His	Glu	Gly 100	Asp	Pro	Cys	Leu	Arg 105	Ser	Ser	Asp	Cys	Ile 110	Glu	Gly	
ttt	tac	tat	act	cat	cat	ttc	taa	acc	aaa	atc	tgc	aaa	cca	gtg	ctc	384
					His											
cat	caq	aaa	gaa	atic	tgt	acc	aaa	caa	cac	aaq	aaq	aat	tct	cat	aaa	432
					Cys											
	130	-			-	135	-				140					
					cgt											480
Leu 145	Glu	Ile	Phe	Gln	Arg 150	Cys	Asp	Cys	Ala	Lys 155	Gly	Leu	Ser	Cys	Lys 160	
σta	taa	aaa	gat	acc	acc	tac	tcc	tcc	aaa	qcc	aga	ctc	cat	gtg	tat	528
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Gln	Lys	Ile														
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Asp Gly Met Cys Cys Pro Ser Thr Arg Cys Asn Asn Gly Ile Cys Ile 35 40 45

Pro Val Thr Glu Ser Ile Leu Thr Pro His Ile Pro Ala Leu Asp Gly
50 55 60

Thr Arg His Arg Asp Arg Asn His Gly His Tyr Ser Asn His Asp Leu 65 70 75 80

Gly Trp Gln Asn Leu Gly Arg Pro His Thr Lys Met Ser His Ile Lys 85 90 95

Gly His Glu Gly Asp Pro Cys Leu Arg Ser Ser Asp Cys Ile Glu Gly
100 105 110

Phe Cys Cys Ala Arg His Phe Trp Thr Lys Ile Cys Lys Pro Val Leu 115 120 125

His Gln Gly Glu Val Cys Thr Lys Gln Arg Lys Lys Gly Ser His Gly 130 135 140

Val Trp Lys Asp Ala Thr Tyr Ser Ser Lys Ala Arg Leu His Val Cys
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Gln Lys Ile

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<220>

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gat ggc atg tgc tgc ccc agt acc cgc tgc aat aat ggc atc tgt atc 144 Asp Gly Met Cys Cys Pro Ser Thr Arg Cys Asn Asn Gly Ile Cys Ile 40 45
cca gtt act gaa agc atc tta acc cct cac atc ccg gct ctg gat ggt 192 Pro Val Thr Glu Ser Ile Leu Thr Pro His Ile Pro Ala Leu Asp Gly 50 55
act cgg cac aga gat cga aac cac ggt cat tac tca aac cat gac ttg 240 Thr Arg His Arg Asp Arg Asn His Gly His Tyr Ser Asn His Asp Leu 70 75 80
gga tgg cag aat cta gga aga cca cac act aag atg tca cat ata aaa 288 Gly Trp Gln Asn Leu Gly Arg Pro His Thr Lys Met Ser His Ile Lys 85 90 95
ggg cat gaa gga gac ccc tgc cta cga tca tca gac tgc att gaa ggg 336 Gly His Glu Gly Asp Pro Cys Leu Arg Ser Ser Asp Cys Ile Glu Gly 100 105
ttt tgc tgt gct cgt cat ttc tgg acc aaa atc tgc aaa cca gtg ctc 384 Phe Cys Cys Ala Arg His Phe Trp Thr Lys Ile Cys Lys Pro Val Leu 120 125
cat cag ggg gaa gtc tgt acc aaa caa cgc aag aag ggt tct cat ggg 432 His Gln Gly Glu Val Cys Thr Lys Gln Arg Lys Lys Gly Ser His Gly 130 135
ctg gaa att ttc cag cgt tgc gac tgt gcg aag ggc ctg tct tgc aaa 480 Leu Glu Ile Phe Gln Arg Cys Asp Cys Ala Lys Gly Leu Ser Cys Lys 150 155
gta tgg aaa gat gcc acc tac tcc tcc aaa gcc aga ctc cat gtg tgt 528  Val Trp Lys Asp Ala Thr Tyr Ser Ser Lys Ala Arg Leu His Val Cys  165 170 175
Cag aaa att Gln Lys Ile 537
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His	ctg Leu	ctg Leu 15	gtc Val	ctg Leu	ctg Leu	ctg Leu	ctc Leu 20	ctc Leu	tct Ser	acc Thr	ctg Leu	gtg Val 25	atc Ile	ccc Pro	tcc Ser	158
							gct Ala									206
							ctc Leu									254
aaa Lys	ggt Gly	aac Asn	ctg Leu	ctt Leu 65	cgg Arg	ggc	ata Ile	gac Asp	agc Ser 70	tta Leu	ttc Phe	tct Ser	gcc Ala	ccc Pro 75	atg Met	302
							aac Asn									350
							ctc Leu 100									398
							gag Glu									446
					Ala		Gly aaa									494
125					130					133					110	
ccc	agg				aag		gcc Ala			ccc					acg	542
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ccc Pro gac Asp	agg Arg agc Ser	Met ttc Phe cca	Glu cac His 160	Glu 145 aca Thr	aag Lys gaa Glu agg	Glu ctc Leu tcc	Ala cat	ccc Pro 165	Val 150 cgg Arg	ccc Pro gtg Val	Ile gcc Ala ctg	Gln ttc Phe gag	tgg Trp 170	Ala 155 atc Ile ggc	acg Thr att Ile	
ccc Pro gac Asp aag Lys	agg Arg agc Ser ctg Leu	Met ttc Phe cca Pro 175	cac His 160 cgg Arg	Glu 145 aca Thr cgg Arg	aag Lys gaa Glu agg Arg	Ctc Leu tcc Ser	Ala cat His cac	ccc Pro 165 cag Gln	Val 150 cgg Arg gat Asp	ccc Pro gtg Val gcc Ala	gcc Ala ctg Leu	Gln ttc Phe gag Glu 185 cgg	tgg Trp 170 ggc Gly	Ala 155 atc Ile ggc Gly	acg Thr att Ile cac His	590
ccc Pro gac Asp aag Lys tgg Trp	agg Arg agc Ser ctg Leu ctc Leu 190 aag	Met ttc Phe cca Pro 175 agc Ser	Cac His 160 cgg Arg gag Glu	Glu 145 aca Thr cgg Arg aag Lys	aag Lys gaa Glu agg Arg cga Arg	Ctc Leu tcc Ser Cac His 195	Ala cat His cac His 180	CCC Pro 165 Cag Gln Ctg Leu	Val 150 cgg Arg gat Asp cag Gln	ccc Pro gtg Val gcc Ala gcc Ala	gcc Ala ctg Leu atc Ile 200	ttc Phe gag Glu 185 cgg Arg	tgg Trp 170 ggc Gly gat Asp	Ala 155 atc Ile ggc Gly gga Gly	acg Thr att Ile cac His	590 638

928

agg ecc tet egg eag etg taggggtggg gaeeggggag eacetgeetg Arg Pro Ser Arg Gln Leu 240 tageccecat cagaccetge eccaageace atatggaaat aaagttettt ettacateta 890 aaaaaaaaa aaaaaaaaa aaaaaaattg gcggccgc <210> 14 <211> 242 <212> PRT <213> Homo sapiens <400> 14 Met Gly Glu Ala Ser Pro Pro Ala Pro Ala Arg Arg His Leu Leu Val 10 Leu Leu Leu Leu Ser Thr Leu Val Ile Pro Ser Ala Ala Pro 20 25 Ile His Asp Ala Asp Ala Gln Glu Ser Ser Leu Gly Leu Thr Gly Leu Gln Ser Leu Leu Gln Gly Phe Ser Arg Leu Phe Leu Lys Gly Asn Leu 50 55 Leu Arg Gly Ile Asp Ser Leu Phe Ser Ala Pro Met Asp Phe Arg Gly 75 Leu Pro Gly Asn Tyr His Lys Glu Glu Asn Gln Glu His Gln Leu Gly 90 Asn Asn Thr Leu Ser Ser His Leu Gln Ile Asp Lys Met Thr Asp Asn Lys Thr Gly Glu Val Leu Ile Ser Glu Asn Val Val Ala Ser Ile Gln 120 Pro Ala Glu Gly Ser Phe Glu Gly Asp Leu Lys Val Pro Arg Met Glu 130 135 140 Glu Lys Glu Ala Leu Val Pro Ile Gln Lys Ala Thr Asp Ser Phe His 150 Thr Glu Leu His Pro Arg Val Ala Phe Trp Ile Ile Lys Leu Pro Arg 165 170 Arg Arg Ser His Gln Asp Ala Leu Glu Gly Gly His Trp Leu Ser Glu 185 Lys Arg His Arg Leu Gln Ala Ile Arg Asp Gly Leu Arg Lys Gly Thr 200 His Lys Asp Val Leu Glu Glu Gly Thr Glu Ser Ser His Ser Arg

215

220

Leu Ser Pro Arg Lys Thr His Leu Leu Tyr Ile Leu Arg Pro Ser Arg

230

150

Gln Leu

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aca gaa ctc cat ccc cgg gtg gcc ttc tgg atc att aag ctg cca cgg Thr Glu Leu His Pro Arg Val Ala Phe Trp Ile Ile Lys Leu Pro Arg 165 170 175	528
cgg agg tcc cac cag gat gcc ctg gag ggc ggc cac tgg ctc agc gag Arg Arg Ser His Gln Asp Ala Leu Glu Gly Gly His Trp Leu Ser Glu 180 185 190	576
aag cga cac cgc ctg cag gcc atc cgg gat gga ctc cgc aag ggg acc Lys Arg His Arg Leu Gln Ala Ile Arg Asp Gly Leu Arg Lys Gly Thr 195 200 205	624
cac aag gac gtc cta gaa gag ggg acc gag agc tcc tcc cac tcc agg His Lys Asp Val Leu Glu Glu Gly Thr Glu Ser Ser His Ser Arg 210 215 220	672
ctg tcc ccc cga aag acc cac tta ctg tac atc ctc agg ccc tct cgg Leu Ser Pro Arg Lys Thr His Leu Leu Tyr Ile Leu Arg Pro Ser Arg 225 230 235 240	720
cag ctg Gln Leu	726
<pre>&lt;210&gt; 16 &lt;211&gt; 2381 &lt;212&gt; DNA &lt;213&gt; Homo sapiens  &lt;220&gt; &lt;221&gt; CDS &lt;222&gt; (110)(1156)  &lt;400&gt; 16 mgtcgaccca cgcgtccgct gtggcagccc agctaccggt cgtgaccaga tccagcttgc e agctcagctt tgttcattcg aattgggcgg cggccagcgc ggaacaaac atg cag cgg 1</pre>	
ctc ggg ggt att ttg ctg tgt aca ctg ctg gcg gcg gcg gtc ccc act 1 Leu Gly Gly Ile Leu Leu Cys Thr Leu Leu Ala Ala Ala Val Pro Thr 5 10 15	-66
get cet get eet tee eeg aeg gte aet teg aet eeg gez men i	14
cca gct ctc aac tac cct cag gag gaa gct acg ctc aat gag atg ttt 20 Pro Ala Leu Asn Tyr Pro Gln Glu Glu Ala Thr Leu Asn Glu Met Phe 40 45 50	62
cga gag gtg gag gag ctg atg gaa gac act cag cac aaa ctg cgc agt 31 Arg Glu Val Glu Glu Leu Met Glu Asp Thr Gln His Lys Leu Arg Ser 55 60 65	10

	gtg Val									358
	gtg Val 85									406
	gag Glu									454
	aag Lys									502
	att Ile									550
	att Ile									598
	aag Lys 165									646
_	gac Asp	_	-							694
	caa Gln									742
	gat Asp									790
	ccc Pro									838
	acc Thr 245	_	-							886
	gct Ala									934
	agc Ser									982

cat gac cac agt gag gag agc cag ctg ccc agg gag gcc ccg gat gag 1030 His Asp His Ser Glu Glu Ser Gln Leu Pro Arg Glu Ala Pro Asp Glu 295 300 305
tac gaa gat gtt ggc ttc ata ggg gaa gtg cgc cag gag ctg gaa gac 1078  Tyr Glu Asp Val Gly Phe Ile Gly Glu Val Arg Gln Glu Leu Glu Asp  310 315 320
ctg gag cgg agc cta gcc cag gag atg gca ttt gag ggg cct gcc cct 1126 Leu Glu Arg Ser Leu Ala Gln Glu Met Ala Phe Glu Gly Pro Ala Pro 325 330 335
gtg gag tca cta ggc gga gag gag att taggcccaga cccagctgag 1176 Val Glu Ser Leu Gly Gly Glu Glu Ile 340 345
tcactggtag atgtgcaata gaaatggcta atttattttc ccaggagtgt ccccaagtgt 1236
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2381

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<213> Homo sapiens

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Glu Pro Gly Pro Ala Leu Asn Tyr Pro Gln Glu Glu Ala Thr Leu Asn 35 40 45

Glu Met Phe Arg Glu Val Glu Glu Leu Met Glu Asp Thr Gln His Lys
50 55 60

Leu Arg Ser Ala Val Glu Glu Met Glu Ala Glu Glu Ala Ala Ala Lys
65 70 75 80

Thr Ser Ser Glu Val Asn Leu Ala Ser Leu Pro Pro Asn Tyr His Asn 85 90 95

Glu Thr Ser Thr Glu Thr Arg Val Gly Asn Asn Thr Val His Val His 100 105 110

Gln Glu Val His Lys Ile Thr Asn Asn Gln Ser Gly Gln Val Val Phe 115 120 125

Ser Glu Thr Val Ile Thr Ser Val Gly Asp Glu Glu Gly Lys Arg Ser 130 135 140

Phe Ser Ser Phe Lys Tyr Thr Cys Gln Pro Cys Arg Asp Gln Gln Met 165 170 175

Leu Cys Thr Arg Asp Ser Glu Cys Cys Gly Asp Gln Leu Cys Ala Trp
180 185 190

Gly His Cys Thr Gln Lys Ala Thr Lys Gly Gly Asn Gly Thr Ile Cys 195 200 205

Asp Asn Gln Arg Asp Cys Gln Pro Gly Leu Cys Cys Ala Phe Gln Arg 210 215 220

Gly Leu Leu Phe Pro Val Cys Thr Pro Leu Pro Val Glu Gly Glu Leu 225 230 235 240

Cys His Asp Pro Thr Ser Gln Leu Leu Asp Leu Ile Thr Trp Glu Leu 245 250 255

Glu Pro Glu Gly Ala Leu Asp Arg Cys Pro Cys Ala Ser Gly Leu Leu 260 265 Cys Gln Pro His Ser His Ser Leu Val Tyr Met Cys Lys Pro Ala Phe 280 Val Gly Ser His Asp His Ser Glu Glu Ser Gln Leu Pro Arg Glu Ala 295 Pro Asp Glu Tyr Glu Asp Val Gly Phe Ile Gly Glu Val Arg Gln Glu 315 Leu Glu Asp Leu Glu Arg Ser Leu Ala Gln Glu Met Ala Phe Glu Gly 325 330 Pro Ala Pro Val Glu Ser Leu Gly Gly Glu Glu Ile 345 <210> 18 <211> 1047 <212> DNA <213> Homo sapiens <220> <221> CDS <222> (1)..(1047) <400> 18 atg cag cgg ctc ggg ggt att ttg ctg tgt aca ctg ctg gcg gcg Met Gln Arg Leu Gly Gly Ile Leu Leu Cys Thr Leu Leu Ala Ala Ala 48 5 gtc ccc act gct cct gct cct tcc ccg acg gtc act tgg act ccg gcg Val Pro Thr Ala Pro Ala Pro Ser Pro Thr Val Thr Trp Thr Pro Ala gag ccg ggc cca gct ctc aac tac cct cag gag gaa gct acg ctc aat Glu Pro Gly Pro Ala Leu Asn Tyr Pro Gln Glu Glu Ala Thr Leu Asn 35 40 gag atg ttt cga gag gtg gag gag ctg atg gaa gac act cag cac aaa 192 Glu Met Phe Arg Glu Val Glu Glu Leu Met Glu Asp Thr Gln His Lys 55 ctg cgc agt gcc gtg gag gag atg gag gcg gaa gaa gca gct gct aaa Leu Arg Ser Ala Val Glu Glu Met Glu Ala Glu Glu Ala Ala Lys 240 70 acg tee tet gag gtg aac etg gea age tta eet eee aac tat cae aat

Thr Ser Ser Glu Val Asn Leu Ala Ser Leu Pro Pro Asn Tyr His Asn

gag acc agc acg gag acc agg gtg gga aat aac aca gtc cat gtg cac Glu Thr Ser Thr Glu Thr Arg Val Gly Asn Asn Thr Val His Val His

105

90

85

100

288

cag gaa gtt c Gln Glu Val H 115	is Lys IIe	Thr Asn As	sn Gln Ser	Gly Gln Val 125	Val Phe
tct gag aca g Ser Glu Thr V 130	al lie Thr	Ser Val G] 135	ly Asp Glu	Glu Gly Lys 140	Arg Ser
cat gaa tgt a His Glu Cys I 145	tc att gat o le Ile Asp ( 150	gaa gac tg Glu Asp Cy	rs Gly Pro 155	acc agg tac Thr Arg Tyr	tgc cag 480 Cys Gln 160
ttc tcc agc to Phe Ser Ser Ph	c aag tac a ne Lys Tyr I 165	cc tgc ca hr Cys Gl	g cca tgc n Pro Cys . 170	Arg Asp Gln	cag atg 528 Gln Met 175
cta tgc acc co Leu Cys Thr Ar 18	g Asp Ser G	ag tgc tg lu Cys Cy: 18:	s Gly Asp (	cag ctg tgt g Gln Leu Cys 1	gcc tgg 576 Ala Trp
ggt cac tgc ac Gly His Cys Th 195	c caa aag g r Gln Lys A	cc acc aaa la Thr Lys 200	a ggt ggc a s Gly Gly <i>I</i>	aat ggg acc a Asn Gly Thr 1 205	atc tgt 624 Ile Cys
gac aac cag ag Asp Asn Gln Ar 210	g Asp Cys G.	ag cet ggd ln Pro Gl _} 15	Leu Cys C	gt gee tte o Cys Ala Phe o	caa aga 672 Sln Arg
ggc ctg ctg tta Gly Leu Leu Pha 225	c ccc gtg to e Pro Val Cy 230	gc aca cco vs Thr Pro	ctg ccc g Leu Pro V 235	rtg gag gga g 'al Glu Gly G	ag ctc 720 lu Leu 240
tgc cat gac ccc Cys His Asp Pro	e acc agc ca o Thr Ser Gl 245	g ctg ctg n Leu Leu	gat ctc a Asp Leu I 250	le Thr Trp G	aa ctg 768 lu Leu 55
gag cct gaa gga Glu Pro Glu Gly 260	Ala Leu As	c cga tgc p Arg Cys 265	ccc tgc go Pro Cys Al	cc agt ggc c la Ser Gly L 270	tc cta 816 eu Leu
tgc cag cca cac Cys Gln Pro His 275	agc cac ag Ser His Se	t ctg gtg r Leu Val 280	tac atg to	gc aag cca go ys Lys Pro Al 285	cc ttc 864 la Phe
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ctg gaa gac ctg Leu Glu Asp Leu	gag cgg ago Glu Arg Ser 325	c cta gcc Leu Ala	cag gag at Gln Glu Me 330	g gca ttt ga t Ala Phe Gl 33	u Gly

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Pro Ala Pro Val Glu Ser Leu Gly Gly Glu Glu Glu Ile
340

1047

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Asp Tyr Lys Asp Asp Asp Asp Lys

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## SEQUENCE LISTING

<110> McCarthy, Sean A. <120> NOVEL CRSP PROTEIN AND NUCLEIC ACID MOLECULES AND USES <130> MEI-008 <140> <141> <150> 08/842,898 <151> 1997-04-17 <150> 60/071,589 <151> 1998-01-15 <160> 19 <170> PatentIn Ver. 2.0 <210> 1 <211> 2479 <212> DNA <213> Homo sapiens <220> <221> CDS <222> (38)..(1087) <400> 1 ggcacgaggg ggcggcgct gcgggcgcag agcggag atg cag cgg ctt ggg gcc Met Gln Arg Leu Gly Ala acc ctg ctg tgc ctg ctg gcg gcg gcg gtc ccc acg gcc ccc gcg Thr Leu Leu Cys Leu Leu Leu Ala Ala Ala Val Pro Thr Ala Pro Ala 103 10 ccc gct ccg acg gcg acc tcg gct cca gtc aag ccc ggc ccg gct ctc Pro Ala Pro Thr Ala Thr Ser Ala Pro Val Lys Pro Gly Pro Ala Leu 151 25 age tae eeg cag gag gee ace ete aat gag atg tte ege gag gtt Ser Tyr Pro Gln Glu Glu Ala Thr Leu Asn Glu Met Phe Arg Glu Val 199 40 gag gaa ctg atg gag gac acg cag cac aaa ttg cgc agc gcg gtg gaa Glu Glu Leu Met Glu Asp Thr Gln His Lys Leu Arg Ser Ala Val Glu 247 55 60 gag atg gag gca gaa gaa gct gct gct aaa gca tca tca gaa gtg aac Glu Met Glu Ala Glu Glu Ala Ala Ala Lys Ala Ser Ser Glu Val Asn

ne	u A	la As	sn re	eu Pr 90	o Pr	o Se	г Ту	r Hi 9	s As 5	n Gl	u Tl	nr As	n Th	nr As	ac ac sp Th	r
aa As	.c gt n Va	t gg il Gl 10	y As	it aa sn As	t ac n Th	c at r Il	c ca e Hi: 11	s Va	g ca l Hi	c cg s Ar	a ga g Gl	aa at lu Il 11	e Hi	ıc aa .s Ly	ag at. /s Il	a 391 e
ac Th	c aa r As 12	n As	c ca n Gl	g ac n Th	t gga r Gl	a caa y Gli 129	n Met	g gto Val	c tt l Ph	t tc e Se	a ga r Gl 13	u Th	a gt r Va	t at l Il	c aca	a 439
tc: Se: 13!	r va	g gg	a ga y As	c ga p Gl	a gaa u Glu 140	ı Gl	aga / Arg	a ago	g ago	c cac r His	s Gl	g tgo u Cys	c at	c at e Il	c gad e Asp 150	)
gaç Glı	g ga ı As _l	c tg o Cy	t ggg s Gl	g cc y Pro 15!	o Ser	atg Met	tac Tyr	tgo Cys	cag Glr 160	ı Phe	z gc ≥ Al	c ago a Sei	tto Phe	c ca e Gl: 16	g tac n Tyr 5	535
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gcc Ala	acc Thr 200	Arg	ggg	ago Ser	aat Asn	999 Gly 205	acc Thr	atc Ile	tgt Cys	gac Asp	aac Asn 210	Gln	agg Arg	gac Asp	tgc Cys	679
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Cys	Inr	Pro	Leu	Pro 235	gtg Val	Glu	Gly	Glu	Leu 240	Cys	His	Asp	Pro	Ala 245	Ser	775
AL 9	neu	neu	250	ьeu	atc Ile	Thr	Trp	G1u 255	Leu	Glu	Pro	Asp	Gly 260	Ala	Leu	823
Asp	Arg	265	Pro	Cys	gcc Ala	Ser	Gly 270	Leu	Leu	Cys	Gln	Pro 275	His	Ser	His	871
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gat Asp 295	gl ^à aaa	gag Glu	atc Ile	ctg Leu	ctg Leu 300	ccc Pro	aga ( Arg (	gag ( Glu	Val	ccc Pro 305	gat Asp	gag Glu	tat Tyr	gaa Glu	gtt Val 310	967

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Lys Pro Gly Pro Ala Leu Ser Tyr Pro Gln Glu Glu Ala Thr Leu Asn 35 40 45

Glu Met Phe Arg Glu Val Glu Glu Leu Met Glu Asp Thr Gln His Lys 50 55 60

Leu Arg Ser Ala Val Glu Glu Met Glu Ala Glu Glu Ala Ala Lys
65 70 75 80

Ala Ser Ser Glu Val Asn Leu Ala Asn Leu Pro Pro Ser Tyr His Asn 85 90 95

Glu Thr Asn Thr Asp Thr Asn Val Gly Asn Asn Thr Ile His Val His

Arg Glu Ile His Lys Ile Thr Asn Asn Gln Thr Gly Gln Met Val Phe

Ser Glu Thr Val Ile Thr Ser Val Gly Asp Glu Glu Gly Arg Arg Ser 130 135 140

Phe Ala Ser Phe Gln Tyr Thr Cys Gln Pro Cys Arg Gly Gln Arg Met 165 170 175

Leu Cys Thr Arg Asp Ser Glu Cys Cys Gly Asp Gln Leu Cys Val Trp
180 185 190

Gly His Cys Thr Lys Met Ala Thr Arg Gly Ser Asn Gly Thr Ile Cys
195 200 205

Asp Asn Gln Arg Asp Cys Gln Pro Gly Leu Cys Cys Ala Phe Gln Arg 210 215 220

Gly Leu Leu Phe Pro Val Cys Thr Pro Leu Pro Val Glu Gly Glu Leu 235 230 235

Cys His Asp Pro Ala Ser Arg Leu Leu Asp Leu Ile Thr Trp Glu Leu 245 250 255

Glu Pro Asp Gly Ala Leu Asp Arg Cys Pro Cys Ala Ser Gly Leu Leu Cys Gln Pro His Ser His Ser Leu Val Tyr Val Cys Lys Pro Thr Phe 280 Val Gly Ser Arg Asp Gln Asp Gly Glu Ile Leu Leu Pro Arg Glu Val Pro Asp Glu Tyr Glu Val Gly Ser Phe Met Glu Glu Val Arg Gln Glu 310 315 Leu Glu Asp Leu Glu Arg Ser Leu Thr Glu Glu Met Ala Leu Arg Glu 330 Pro Ala Ala Ala Ala Ala Leu Leu Gly Arg Glu Glu Ile 345 <210> 3 <211> 1050 <212> DNA <213> Homo sapiens <220> <221> CDS <222> (1)..(1050) <400> 3 atg cag cgg ctt ggg gcc acc ctg ctg tgc ctg ctg ctg gcg gcg 48 Met Gln Arg Leu Gly Ala Thr Leu Leu Cys Leu Leu Leu Ala Ala 1 gtc ccc acg gcc ccc gcg ccc gct ccg acg gcg acc tcg gct cca gtc Val Pro Thr Ala Pro Ala Pro Ala Pro Thr Ala Thr Ser Ala Pro Val 25 aag eee gge eeg get ete age tae eeg eag gag gee ace ete aat Lys Pro Gly Pro Ala Leu Ser Tyr Pro Gln Glu Glu Ala Thr Leu Asn 144 35 gag atg ttc cgc gag gtt gag gaa ctg atg gag gac acg cag cac aaa Glu Met Phe Arg Glu Val Glu Glu Leu Met Glu Asp Thr Gln His Lys 192 ttg cgc agc gcg gtg gaa gag atg gag gca gaa gaa gct gct aaa Leu Arg Ser Ala Val Glu Glu Met Glu Ala Glu Glu Ala Ala Lys 240 70 75 80 gca tca tca gaa gtg aac ctg gca aac tta cct ccc agc tat cac aat Ala Ser Ser Glu Val Asn Leu Ala Asn Leu Pro Pro Ser Tyr His Asn 288 85 90 gag acc aac aca gac acg aac gtt gga aat aat acc atc cat gtg cac Glu Thr Asn Thr Asp Thr Asn Val Gly Asn Asn Thr Ile His Val His

105

Arg	( GI	11	е Н1 5	s Ly	s Il	e Th:	120	n As O	n Gl	n Th	ır Gl	y Gl 12	n Me 5	t Va	c ttt	
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cac His 145	gag Glu	tge Cys	c ate	c ato e Ile	c gad Asp 150	o Glu	gad Asp	c tgi	t ggg	g cc y Pr 15	o Se	c at	g ta t Ty	c tg r Cy	c cag s Gln 160	480
ttt Phe	gcc Ala	ago Ser	tto Phe	c cag e Glr 165	туг	acc Thr	tgc	cag Glr	g cca n Pro 170	с Су:	c cg s Ar	g Glj a gg	c caq 7 Gli	g ag n Ar 17	g atg g Met 5	528
ctc Leu	tgc Cys	acc	e egg Arg 180	J Asp	agt Ser	gag Glu	tgc Cys	tgt Cys 185	Gl _y	a gad / Asp	c cag	g cto n Lei	tgt Cys 190	Va:	c tgg l Trp	576
ggt Gly	cac His	tgc Cys 195	Thr	aaa Lys	atg Met	gcc Ala	acc Thr 200	agg Arg	ggc	ago Ser	aat Asi	ggg Gly 205	Thr	ato Ile	tgt Cys	624
gac Asp	aac Asn 210	cag Gln	agg Arg	gac Asp	tgc Cys	cag Gln 215	ccg Pro	Gly	ctg Leu	tgc Cys	tgt Cys 220	3 Ala	ttc Phe	caç Glr	g aga n Arg	672
ggc Gly 225	ctg Leu	ctg Leu	ttc Phe	cct Pro	gtg Val 230	tgc Cys	aca Thr	ccc Pro	ctg Leu	ccc Pro 235	gtg Val	gag Glu	ggc	gag Glu	ctt Leu 240	720
tgc Cys :	cat His	gac Asp	ccc Pro	gcc Ala 245	agc Ser	cgg Arg	ctt Leu	ctg Leu	gac Asp 250	ctc Leu	atc Ile	acc Thr	tgg Trp	gag Glu 255	cta Leu	768
gag ( Glu )	Pro	Asp	260 21y	Ala	Leu	Asp	Arg	Cys 265	Pro	Cys	Ala	Ser	Gly 270	Leu	Leu	816
tgc ( Cys (	≟⊥n	Pro 275	His	Ser	His	Ser	Leu 280	Val	Tyr	Val	Cys	Lys 285	Pro	Thr	Phe	864
	390 31y	ser	Arg	Asp	Gln	Asp 295	Gly	Glu	Ile	Leu	Leu 300	Pro	Arg	Glu	Val	912
ccc g Pro A 305	yat ( Asp (	gag Glu	tat Tyr	Glu	gtt Val 310	ggc Gly	agc Ser	ttc Phe	atg Met	gag Glu 315	gag Glu	gtg Val	cgc Arg	cag Gln	gag Glu 320	960
ctg g Leu G	ag g lu <i>l</i>	gac Asp	Leu	gag Glu 325	agg Arg	agc ( Ser 1	ctg a Leu '	Thr	gaa Glu 330	gag Glu	atg Met	gcg Ala	Leu	agg Arg 335	gag Glu	1008

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Se	it tg er Cy 14	s Le	g ag u Ar	a ac g Th	t tt: r Ph	t gad e Asp 150	Cys	ggc Gly	cct Pro	Gly	t ctt Let 155	з Су:	c tg s Cy	rt go	ct c la A	gt 601 irg
ca Hi 16	s Pn	t tg e Tr	g ac	g aaa r Ly:	a att s Ile 165	tgt Cys	aag Lys	cca Pro	gtc Val	ctt Leu 170	Leu	gag Glu	9 99 1 Gl	a ca y Gl	n V	tc 649 al 75
tg Cy	c tc s Se	c ag r Ar	a aga g Arg	9 ggg 9 Gly 180	/ His	aaa Lys	gac Asp	act Thr	gct Ala 185	caa Gln	gct Ala	cca Pro	ı ga Gl	a at u Il 19	e P	tc 697 he
Ca ₉ Gli	g cg n Arg	t tg g Cy:	c gad s Asp 195	о Сув	ggc Gly	cct Pro	gga Gly	cta Leu 200	ctg Leu	tgt Cys	cga Arg	ago Ser	Ca.	ı Le	g ad u Tl	cc 745 hr
ago Sei	c aat r Asi	cgg Arg 210	g GIn	cat His	gct Ala	cga Arg	tta Leu 215	aga Arg	gta Val	tgc Cys	caa Gln	aaa Lys 220	$11\epsilon$	a ga e Gli	a aa u Ly	ag 793 ys
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1			ALG	5	LCu	Dea	1		10	rrp	Leu	Cys	Ser	Pro 15		u
T				5		Phe			10					15	i	
Gly	Ala	Leu	Val 20	5 Leu	Asp		Asn .	Asn 25	10 Ile 2	Arg	Ser	Ser	Ala 30	15 Asp	Le	u
Gly	Ala Gly	Leu Ala 35	Val 20 Arg	Leu Lys	Asp Gly	Phe	Asn . Gln (	Asn 25 Cys 1	10 Ile <i>i</i> Leu s	Arg Ser	Ser Asp	Ser Thr 45	Ala 30 Asp	Asp Cys	Le ¹	u n
Gly His	Ala Gly Arg 50	Leu Ala 35 Lys	Val 20 Arg Phe	Leu Lys Cys	Asp Gly Leu	Phe Ser	Asn de Gln (40)	Asn : 25 Cys 1	10 Ile i Leu s	Arg Ser .	Ser Asp Lys 60	Ser Thr 45 Pro	Ala 30 Asp Phe	Asp Cys	Le: Ası Ala	u n a
Gly His Thr	Ala Gly Arg 50 Cys	Leu Ala 35 Lys Arg	Val 20 Arg Phe	Leu Lys Cys	Asp Gly Leu Arg 70	Phe Ser Gln	Asn Gln (40 Pro A	Asn 25 Cys 1 Arg A	10 Ile A Leu S Asp C	Arg Ser . Glu :	Ser Asp Lys 60 Asp	Ser Thr 45 Pro	Ala 30 Asp Phe Met	Asp Cys Cys	Ası Ala Cys	u n a s
Gly His Thr Fhr 65	Ala Gly Arg 50 Cys	Leu Ala 35 Lys Arg	Val 20 Arg Phe Gly Leu	Leu Lys Cys Leu Cys 85	Asp Gly Leu Arg 70 Val	Phe Ser Gln: 55	Asn .  Gln ( 40  Pro A  Arg (  Asp V	Asn 25 Cys 1 Arg A	10 Ile i Leu s Asp ( Gln i Eys T	Arg Ser . Slu : Arg : 75	Ser Asp Lys 60 Asp	Ser Thr 45 Pro Ala	Ala 30 Asp Phe Met	Asp Cys Cys Cys Asp 95	Asi Ala Cys 80	u n a s o
Gly His Thr 65 Pro	Ala Gly Arg 50 Cys Gly Pro	Leu Ala 35 Lys Arg Thr	Val 20 Arg Phe Gly Leu Leu 100	Leu Lys Cys Leu Cys 85	Asp Gly Leu Arg 70 Val	Phe Ser Gln: 55 Arg Asn Gln I	Asn Asn Asp V	Asn 25 Cys 1 Arg 1 Cys C	10 Ile i Leu S Asp ( Sln i 90 Ilu G	Arg Ser Arg Arg Arg Thr Shr	Ser Asp Lys 60 Asp Thr I	Ser Thr 45 Pro Ala Met	Ala 30 Asp Phe Met Glu Thr	Asp Cys Cys Cys Asp 95	Asi Ala Cys 80 Ala	u n a s o

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ggg gac gca g Gly Asp Ala G 105			Ala Cys A			449
cgc tgc atg c Arg Cys Met A 120						497
gga ata tgc g Gly Ile Cys Va						545
gaa acc atc a Glu Thr Ile T 1			Asp His S			593
tat tcc aga ag Tyr Ser Arg A						641
caa gaa ggt to Gln Glu Gly So 185			Ser Asp (			689
tgt tgt gct ag Cys Cys Ala A 200						737
gaa ggt caa g Glu Gly Gln V						785
gaa ata ttc c Glu Ile Phe G 2	ag cgt tgt In Arg Cys	tac tgt gga Tyr Cys Gly 240	Glu Gly I	ctg tct tgc Leu Ser Cys 245	cgg ata Arg Ile	833
cag aaa gat c Gln Lys Asp H 250						881
cag aga cac t Gln Arg His 265	aaaccagct a	atccaaaatg c	agtgaactc	cttttatata		930
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Leu Gly Gly Ala Ala Gly His Pro Gly Ser Ala Val Ser Ala Ala Pro 50 55 60

Gly Ile Leu Tyr Pro Gly Gly Asn Lys Tyr Gln Thr Ile Asp Asn Tyr
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Gln Pro Tyr Pro Cys Ala Glu Asp Glu Glu Cys Gly Thr Asp Glu Tyr 85 90 95

Cys Ala Ser Pro Thr Arg Gly Gly Asp Ala Gly Val Gln Ile Cys Leu 100 105 110

Ala Cys Arg Lys Arg Lys Arg Cys Met Arg His Ala Met Cys Cys
115 120 125

Pro Gly Asn Tyr Cys Lys Asn Gly Ile Cys Val Ser Ser Asp Gln Asn 130 135 140

His Phe Arg Gly Glu Ile Glu Glu Thr Ile Thr Glu Ser Phe Gly Asn 145 150 155 160

Asp His Ser Thr Leu Asp Gly Tyr Ser Arg Arg Thr Thr Leu Ser Ser 165 170 175

Lys Met Tyr His Thr Lys Gly Gln Glu Gly Ser Val Cys Leu Arg Ser 180 185 Ser Asp Cys Ala Ser Gly Leu Cys Cys Ala Arg His Phe Trp Ser Lys Ile Cys Lys Pro Val Leu Lys Glu Gly Gln Val Cys Thr Lys His Arg 215 Arg Lys Gly Ser His Gly Leu Glu Ile Phe Gln Arg Cys Tyr Cys Gly 225 230 235 Glu Gly Leu Ser Cys Arg Ile Gln Lys Asp His His Gln Ala Ser Asn 250 Ser Ser Arg Leu His Thr Cys Gln Arg His 260 <210> 9 <211> 798 <212> DNA <213> Homo sapiens <220> <221> CDS <222> (1)..(798) <400> 9 atg atg gct ctg ggc gca gcg gga gct acc cgg gtc ttt gtc gcg atg Met Met Ala Leu Gly Ala Ala Gly Ala Thr Arg Val Phe Val Ala Met 5 gta gcg gcg gct ctc ggc ggc cac cct ctg ctg gga gtg agc gcc acc Val Ala Ala Leu Gly Gly His Pro Leu Leu Gly Val Ser Ala Thr 20 25 ttg aac tcg gtt ctc aat tcc aac gct atc aag aac ctg ccc cca ccg 144 Leu Asn Ser Val Leu Asn Ser Asn Ala Ile Lys Asn Leu Pro Pro ctg ggc ggc gct gcg ggg cac cca ggc tct gca gtc agc gcc gcg ccg 192 Leu Gly Gly Ala Ala Gly His Pro Gly Ser Ala Val Ser Ala Ala Pro 55 gga atc ctg tac ccg ggc ggg aat aag tac cag acc att gac aac tac 240 Gly Ile Leu Tyr Pro Gly Gly Asn Lys Tyr Gln Thr Ile Asp Asn Tyr 70 cag ccg tac ccg tgc gca gag gac gag gag tgc ggc act gat gag tac 288 Gln Pro Tyr Pro Cys Ala Glu Asp Glu Glu Cys Gly Thr Asp Glu Tyr 85 90

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Cys Ala Ser Pro Thr Arg Gly Gly Asp Ala Gly Val Gln Ile Cys Leu

105

100

336

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gat Asp	ggc Gly	atg Met 35	tgc Cys	tgc Cys	Pro	agt Ser	acc Thr 40	cgc Arg	tgc Cys	aat Asn	aat Asn	ggc Gly 45	ato Ile	tg:	atc Ile	144
cca Pro	gtt Val 50	act Thr	gaa Glu	agc Ser	atc Ile	tta Leu 55	acc Thr	cct Pro	cac His	atc Ile	ccg Pro 60	gct Ala	ctg Leu	gat Asp	ggt Gly	192
act Thr 65	cgg Arg	cac His	aga Arg	gat Asp	cga Arg 70	aac Asn	cac His	ggt Gly	cat His	tac Tyr 75	tca Ser	aac Asn	cat His	gac Asp	ttg Leu 80	240
027	**P	GIII	ASII	85	GIY	Arg	Pro	His	Thr 90	Lys	atg Met	Ser	His	Ile 95	Lys	288
		JIU (	100	ASP	PIO	Cys	Leu	Arg 105	Ser	Ser	gac Asp	Cys	Ile 110	Glu	Gly	336
ttt i	:	115	nia 1	Arg	нıs	Pne .	120	Thr	Lys	Ile	Cys :	Lys 1 125	Pro	Val	Leu	384
	130	Jry C	siu v	val (	cys :	inr . 135	Lys (	Gln /	Arg :	Lys	Lys ( 140	Gly S	Ser	His	Gly	432
ctg g Leu G 145	, Lu 1	.ic r	ine c	3111 }	150 L50	ys A	Asp (	lys A	Ala 1	Lys ( 155	Gly I	eu S	Ser (	Cys	Lys 160	480
gta t Val T	-P 1	ys A	1 1	65	nr 1	yr s	ser S	Ser I	Lys <i>I</i> 170	Ala A	Arg L	eu H	is \	gtg Val 175	tgt Cys	528
cag a Gln L	<i>y</i>	16														577
gttgt																
taaaa geege	caay	а <b>d</b> d(	-y cga	ataa	gaa	tata	gat (	gatc	acaa	aa a	.aaaa	aaaa	a aa	aaga	tgcg	697
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<211> 179

<212> PRT

<213> Homo sapiens

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Ser Ser Ala Cys Met Val Cys Arg Arg Lys Lys Lys Arg Cys His Arg 20 25 30

Asp Gly Met Cys Cys Pro Ser Thr Arg Cys Asn Asn Gly Ile Cys Ile
35 40 45

Pro Val Thr Glu Ser Ile Leu Thr Pro His Ile Pro Ala Leu Asp Gly 50 55 60

Thr Arg His Arg Asp Arg Asn His Gly His Tyr Ser Asn His Asp Leu 65 70 75 80

Gly Trp Gln Asn Leu Gly Arg Pro His Thr Lys Met Ser His Ile Lys 85 90 95

Gly His Glu Gly Asp Pro Cys Leu Arg Ser Ser Asp Cys Ile Glu Gly 100 105 110

Phe Cys Cys Ala Arg His Phe Trp Thr Lys Ile Cys Lys Pro Val Leu 115 120 125

His Gln Gly Glu Val Cys Thr Lys Gln Arg Lys Lys Gly Ser His Gly 130 135 140

Val Trp Lys Asp Ala Thr Tyr Ser Ser Lys Ala Arg Leu His Val Cys 165 170 175

Gln Lys Ile

<210> 12

<211> 537

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<220>

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gat As <u>r</u>	gg Gl	c ato y Met 35	Cys	tgo Cys	ccc Pro	agt Ser	acc Thr 40	Arg	tgc Cys	aat Asn	aat Asn	ggc Gly 45	ato Ile	tgt Cys	atc Ile	144
cca Pro	u gtt Val 50	act l Thr	gaa Glu	agc Ser	ato Ile	tta Leu 55	acc Thr	cct Pro	cac His	atc Ile	ccg Pro 60	gct Ala	ctg Leu	gat Asp	ggt Gly	192
act Thr 65	Arg	g cac g His	aga Arg	gat Asp	cga Arg 70	aac Asn	cac His	ggt Gly	cat His	tac Tyr 75	tca Ser	aac Asn	cat His	gac Asp	ttg Leu 80	240
gga Gly	tgg Trp	cag Gln	aat Asn	cta Leu 85	gga Gly	aga Arg	cca Pro	cac His	act Thr 90	aag Lys	atg Met	tca Ser	cat His	ata Ile 95	aaa Lys	288
GIY	HIS	gaa Glu	100	Asp	Pro	Cys	Leu	Arg 105	Ser	Ser	Asp	Cys	Ile 110	Glu	Gly	336
PHE	Cys	tgt Cys 115	Ala	Arg	Hıs	Phe	Trp 120	Thr	Lys	Ile	Cys	Lys 125	Pro	Val	Leu	384
HIS	130	Gly aaa	Glu	Val	Cys	Thr 135	Lys	Gln	Arg	Lys	Lys 140	Gly	Ser	His	Gly	432
145	GIU	att Ile	Pne	GIn	Arg 150	Cys .	Asp	Cys	Ala	Lys 155	Gly	Leu :	Ser	Cys	Lys 160	480
vaı	Trp	aaa Lys	Asp .	gcc Ala 165	acc Thr '	tac Tyr	tcc Ser	Ser :	aaa Lys . 170	gcc Ala	aga ( Arg )	ctc ( Leu I	lis '	gtg ( Val (	tgt Cys	528
cag Gln																537
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				ctg Leu												158
				atc Ile												206
				cag Gln												254
aaa Lys	ggt Gly	aac Asn	ctg Leu	ctt Leu 65	cgg Arg	ggc Gly	ata Ile	gac Asp	agc Ser 70	tta Leu	ttc Phe	tct Ser	gcc Ala	ccc Pro 75	atg Met	302
				ctc Leu												350
				aac Asn												398
Met	Thr 110	Asp	Asn	aag Lys	Thr	Gly 115	Glu	Val	Leu	Ile	Ser 120	Glu	Asn	Val	Val	446
Ala 125	Ser	Ile	Gln	cca Pro	Ala 130	Glu	Gly	Ser	Phe	Glu 135	Gly	Asp	Leu	Lys	Val 140	494
Pro	Arg	Met	Glu	gag Glu 145	Lys	Glu	Ala	Leu	Val 150	Pro	Ile	Gln	Lys	Ala 155	Thr	542
Asp	Ser	Phe	His 160	aca Thr	Glu	Leu	His	Pro 165	Arg	Val	Ala	Phe	Trp 170	Ile	Ile	590
Lys	Leu	Pro 175	Arg	cgg Arg	Arg	Ser	His 180	Gln	Asp	Ala	Leu	Glu 185	Gly	Gly	His	638
		_	_	aag Lys												686
				cac His												734
				ctg								ctg Leu				782

agg ccc tct cgg cag ctg taggggtggg gaccggggag cacctgcctg Arg Pro Ser Arg Gln Leu 240

830

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aaaaaaaaa aaaaaaaaa aaaaaaattg gcggccgc

928

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<211> 242

<212> PRT

<213> Homo sapiens

<400> 14

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Leu Leu Leu Leu Ser Thr Leu Val Ile Pro Ser Ala Ala Pro 20 25 30

Ile His Asp Ala Asp Ala Gln Glu Ser Ser Leu Gly Leu Thr Gly Leu  $35 \hspace{1cm} 40 \hspace{1cm} 45$ 

Gln Ser Leu Leu Gln Gly Phe Ser Arg Leu Phe Leu Lys Gly Asn Leu
50 55 60

Leu Arg Gly Ile Asp Ser Leu Phe Ser Ala Pro Met Asp Phe Arg Gly 65 70 75 80

Leu Pro Gly Asn Tyr His Lys Glu Glu Asn Gln Glu His Gln Leu Gly
85 90 95

Asn Asn Thr Leu Ser Ser His Leu Gln Ile Asp Lys Met Thr Asp Asn 100 105 110

Lys Thr Gly Glu Val Leu Ile Ser Glu Asn Val Val Ala Ser Ile Gln
115 120 125

Pro Ala Glu Gly Ser Phe Glu Gly Asp Leu Lys Val Pro Arg Met Glu 130 135 140

Glu Lys Glu Ala Leu Val Pro Ile Gln Lys Ala Thr Asp Ser Phe His 145 150 155 160

Thr Glu Leu His Pro Arg Val Ala Phe Trp Ile Ile Lys Leu Pro Arg 165 170 175

Arg Arg Ser His Gln Asp Ala Leu Glu Gly Gly His Trp Leu Ser Glu 180 185 190

Lys Arg His Arg Leu Gln Ala Ile Arg Asp Gly Leu Arg Lys Gly Thr 195 200 205

His Lys Asp Val Leu Glu Glu Gly Thr Glu Ser Ser His Ser Arg

Leu Ser Pro Arg Lys Thr His Leu Leu Tyr Ile Leu Arg Pro Ser Arg 225 230 235 240

Gln Leu

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Leu Leu Leu Leu Ser Thr Leu Val Ile Pro Ser Ala Ala Pro
20 25 30

atc cat gat gct gac gcc caa gag agc tcc ttg ggt ctc aca ggc ctc 144
Ile His Asp Ala Asp Ala Gln Glu Ser Ser Leu Gly Leu Thr Gly Leu
35 40 45

cag agc cta ctc caa ggc ttc agc cga ctt ttc ctg aaa ggt aac ctg 192 Gln Ser Leu Leu Gln Gly Phe Ser Arg Leu Phe Leu Lys Gly Asn Leu 50 55 60

ctt cgg ggc ata gac agc tta ttc tct gcc ccc atg gac ttc cgg ggc
Leu Arg Gly Ile Asp Ser Leu Phe Ser Ala Pro Met Asp Phe Arg Gly
65 70 75 80

ctc cct ggg aac tac cac aaa gag gag aac cag gag cac cag ctg ggg 288 Leu Pro Gly Asn Tyr His Lys Glu Glu Asn Gln Glu His Gln Leu Gly 85 90 95

aac aac acc ctc tcc agc cac ctc cag atc gac aag atg acc gac aac 336 Asn Asn Thr Leu Ser Ser His Leu Gln Ile Asp Lys Met Thr Asp Asn 100 105 110

aag aca gga gag gtg ctg atc tcc gag aat gtg gtg gca tcc att caa 384 Lys Thr Gly Glu Val Leu Ile Ser Glu Asn Val Val Ala Ser Ile Gln 115 120 125

cca geg gag ggg agc ttc gag ggt gat ttg aag gta ccc agg atg gag 432 Pro Ala Glu Gly Ser Phe Glu Gly Asp Leu Lys Val Pro Arg Met Glu 130 135 140

gag aag gag gcc ctg gta ccc atc cag aag gcc acg gac agc ttc cac 480 Glu Lys Glu Ala Leu Val Pro Ile Gln Lys Ala Thr Asp Ser Phe His 145 150 155 160

aca Thi	gaa Glu	cto Leu	cat His	ccc Pro 165	Arg	gtg Val	gcc Ala	ttc Phe	tgg Trp 170	Ile	att Ile	aag Lys	ctg	cca Pro 175	cgg Arg	528
cgg Arg	agg Arg	tcc Ser	cac His 180	cag Gln	gat Asp	gcc Ala	ctg Leu	gag Glu 185	ggc Gly	ggc	cac His	tgg Trp	cto Leu 190	Ser	gag	576
aag Lys	cga Arg	cac His 195	cgc Arg	ctg Leu	cag Gln	gcc Ala	atc Ile 200	cgg Arg	gat Asp	gga Gly	ctc Leu	cgc Arg 205	aag Lys	gly ggg	acc Thr	624
cac His	aag Lys 210	gac Asp	gtc Val	cta Leu	gaa Glu	gag Glu 215	gly ggg	acc Thr	gag Glu	agc Ser	tcc Ser 220	tcc Ser	cac His	tcc Ser	agg Arg	672
ctg Leu 225	tcc Ser	ccc Pro	cga Arg	aag Lys	acc Thr 230	cac His	tta Leu	ctg Leu	tac Tyr	atc Ile 235	ctc Leu	agg Arg	ccc Pro	tct Ser	cgg Arg 240	720
	ctg Leu															726
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	l> CI	_	. (11	.56)												
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agct	cago	ett t	gtto	atto	g aa	ttgg	gcgg	cgg	ccag	cgc	ggaa	.caaa			ıg cgg .n Arg	118
ctc Leu	999 5	ggt Gly	att Ile	ttg Leu	ctg Leu	tgt Cys 10	aca Thr	ctg Leu	ctg Leu	gcg Ala	gcg Ala 15	gcg Ala	gtc Val	ccc Pro	act Thr	166
gct Ala 20	cct Pro	gct Ala	cct Pro	tcc Ser	ccg Pro 25	acg Thr	gtc Val	act Thr	tgg Trp	act Thr 30	ccg Pro	gcg Ala	gag Glu	ccg Pro	ggc Gly 35	214
					cct Pro											262
cga Arg	gag Glu	gtg Val	gag Glu 55	gag Glu	ctg ( Leu l	atg ( Met (	gaa g Glu i	gac Asp 60	act Thr	cag Gln	cac His	aaa Lys	ctg Leu 65	cgc Arg	agt Ser	310

gc Al	c gt a Va	II G.	ag g lu G 70	ag a lu M	tg g et G	ag g lu A	cg (	gaa Glu 75	ga: Gl:	a go u Al	ag .aA	ct q la i	gct Ala	aaa Lys	s Th	g to Ir Se	cc er	tct Ser	358
ga Gl	u va	g aa 1 As 5	ac ci	eu A	ca a la S	er L	ta ( eu 1 90	cct Pro	Pro	c aa o As	c ta n Ty	at d /r H	cac His 95	aat Asr	z ga n Gl	g ad u Th	cc	agc Ser	406
ac Th	r Gr	g ac u Th	c ag r Ar	g Va	ig gg al Gi 10	Ly A	at a sn A	aac Asn	aca Thr	gt Va	с са 1 Ні 11	s V	gtg Val	cac His	ca Gl:	g ga n Gl	u .u	gtt Val 115	454
ca Hi	c aag s Ly	g at s Il	a ac e Th	c aa r As 12	nc aa sn As !0	ic ca	ig a .n S	gt	gga Gly	Gli 125	n Va	gg 1V	tc al	ttt Phe	to: Sei	t ga r Gl 13	u	aca Thr	502
gto Va]	at:	t ac	a to r Se 13	r va	a gg 1 Gl	g ga	it g p G	lu	gaa Glu 140	Gl)	c aa / Ly	ga sA	gg rg	agc Ser	cat His	Gl	a u (	tgt Cys	550
ato Ile	att Ile	gat S Asp 150	o GT.	a ga u As	c tg p Cy	t gg s Gl	у Р	cc ro 55	acc Thr	agg Arg	f ta	c to	ys	cag Gln 160	ttc Phe	tce Se:	c a	agc Ser	598
Phe	165	i Tyr	Th	r Cy	c ca s Gl	n Pr 17	о С <u>т</u> О	ys i	Arg	Asp	Glı	1 G.	ln 1 75	Met	Leu	Суя	3 7	Thr	646
180	Asp	ser	GI	1 Су	tg s Cy:	s Gl	y As	sp (	Gln	Leu	Cys 190	Al	la !	Trp	Gly	His	1	ys .95	694
1111	GIII	гàг	Ala	200		GL)	/ Gl	y F	Asn	Gly 205	Thr	· Il	.e (	Cys	Asp	Asn 210	G	ln	742
Arg	Asp	Cys	215	Pro	Gly	Let	ι Су	s C	:ys :20	Ala	Phe	Gl	n A	Arg	Gly 225	Leu	L	eu	790
FIIE	PIO	230	Cys	Thr	ccc Pro	Leu	23	o V 5	al (	Glu	Gly	Gl.	u L 2	eu (	Cys	His	A:	sp	838
110	245	ser	GIII	Leu	ctg Leu	250	Le	u I	le :	Thr	Trp	Gl: 25	u L 5	eu (	Glu	Pro	G]	Lu	886
gga Gly 260	Ala	ьец	Asp	Arg	Cys 265	Pro	Су	5 A.	la S	Ser	Gly 270	Leı	ı L	eu (	Cys	Gln	Pr 27	°0 '5	934
cac His	agc Ser	cac His	agt Ser	ctg Leu 280	gtg Val	tac Tyr	ato Met	g to	ys I	aag Lys 285	cca Pro	gco Ala	e ti	tc g he V	al (	ggc Gly 290	ag Se	r	982

cat gac cac agt gag gag agc cag ctg ccc agg gag gcc ccg gat gag 1030 His Asp His Ser Glu Glu Ser Gln Leu Pro Arg Glu Ala Pro Asp Glu 295 300 305
tac gaa gat gtt ggc ttc ata ggg gaa gtg cgc cag gag ctg gaa gac 1078 Tyr Glu Asp Val Gly Phe Ile Gly Glu Val Arg Gln Glu Leu Glu Asp 310 315 320
ctg gag cgg agc cta gcc cag gag atg gca ttt gag ggg cct gcc cct 1126 Leu Glu Arg Ser Leu Ala Gln Glu Met Ala Phe Glu Gly Pro Ala Pro 325 330 335
gtg gag tca cta ggc gga gag gag att taggcccaga cccagctgag 1176 Val Glu Ser Leu Gly Gly Glu Glu Ile 340 345
tcactggtag atgtgcaata gaaatggcta atttattttc ccaggagtgt ccccaagtgt 1236
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<211> 349

<212> PRT

<213> Homo sapiens

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- Val Pro Thr Ala Pro Ala Pro Ser Pro Thr Val Thr Trp Thr Pro Ala
  20 25 30
- Glu Pro Gly Pro Ala Leu Asn Tyr Pro Gln Glu Glu Ala Thr Leu Asn 35 40 45
- Glu Met Phe Arg Glu Val Glu Glu Leu Met Glu Asp Thr Gln His Lys
  50 55 60
- Leu Arg Ser Ala Val Glu Glu Met Glu Ala Glu Glu Ala Ala Lys
  65 70 75 80
- Thr Ser Ser Glu Val Asn Leu Ala Ser Leu Pro Pro Asn Tyr His Asn 85 90 95
- Glu Thr Ser Thr Glu Thr Arg Val Gly Asn Asn Thr Val His Val His
- Gln Glu Val His Lys Ile Thr Asn Asn Gln Ser Gly Gln Val Val Phe
  115 120 125
- Ser Glu Thr Val Ile Thr Ser Val Gly Asp Glu Glu Gly Lys Arg Ser 130 135 140
- Phe Ser Ser Phe Lys Tyr Thr Cys Gln Pro Cys Arg Asp Gln Gln Met 165
- Leu Cys Thr Arg Asp Ser Glu Cys Cys Gly Asp Gln Leu Cys Ala Trp
- Gly His Cys Thr Gln Lys Ala Thr Lys Gly Gly Asn Gly Thr Ile Cys
  195 200 205
- Asp Asn Gln Arg Asp Cys Gln Pro Gly Leu Cys Cys Ala Phe Gln Arg 210 215 220
- Gly Leu Leu Phe Pro Val Cys Thr Pro Leu Pro Val Glu Gly Glu Leu 225 230 235 240
- Cys His Asp Pro Thr Ser Gln Leu Leu Asp Leu Ile Thr Trp Glu Leu 245 250 255

Glu Pro Glu Gly Ala Leu Asp Arg Cys Pro Cys Ala Ser Gly Leu Leu 265 Cys Gln Pro His Ser His Ser Leu Val Tyr Met Cys Lys Pro Ala Phe 275 Val Gly Ser His Asp His Ser Glu Glu Ser Gln Leu Pro Arg Glu Ala 295 Pro Asp Glu Tyr Glu Asp Val Gly Phe Ile Gly Glu Val Arg Gln Glu 310 315 Leu Glu Asp Leu Glu Arg Ser Leu Ala Gln Glu Met Ala Phe Glu Gly 330 Pro Ala Pro Val Glu Ser Leu Gly Gly Glu Glu Ile 340 345 <210> 18 <211> 1047 <212> DNA <213> Homo sapiens <220> <221> CDS <222> (1)..(1047) <400> 18 atg cag cgg ctc ggg ggt att ttg ctg tgt aca ctg ctg gcg gcg 48 Met Gln Arg Leu Gly Gly Ile Leu Leu Cys Thr Leu Leu Ala Ala 7 gtc ccc act gct cct gct cct tcc ccg acg gtc act tgg act ccg gcg 96 Val Pro Thr Ala Pro Ala Pro Ser Pro Thr Val Thr Trp Thr Pro Ala 20 25 gag ccg ggc cca gct ctc aac tac cct cag gag gaa gct acg ctc aat Glu Pro Gly Pro Ala Leu Asn Tyr Pro Gln Glu Glu Ala Thr Leu Asn 35 gag atg ttt cga gag gtg gag gag ctg atg gaa gac act cag cac aaa 192 Glu Met Phe Arg Glu Val Glu Glu Leu Met Glu Asp Thr Gln His Lys 55 ctg cgc agt gcc gtg gag gag atg gag gcg gaa gaa gca gct gct aaa 240 Leu Arg Ser Ala Val Glu Glu Met Glu Ala Glu Glu Ala Ala Lys 70 acg tcc tct gag gtg aac ctg gca agc tta cct ccc aac tat cac aat 288 Thr Ser Ser Glu Val Asn Leu Ala Ser Leu Pro Pro Asn Tyr His Asn 85 95 gag acc agc acg gag acc agg gtg gga aat aac aca gtc cat gtg cac Glu Thr Ser Thr Glu Thr Arg Val Gly Asn Asn Thr Val His Val His 100 105

115	HIS LYS II	e Thr Asr 120	n Asn Gln )	ı Ser Gly Gl 12	-	e
130	var ite in	r ser val	. Gly Asp	Glu Glu Gl 140	c aag agg ag y Lys Arg Se	r
cat gaa tgt His Glu Cys 145	atc att ga Ile Ile As; 150	o Giu Asp	tgt ggg Cys Gly	ccc acc ag Pro Thr Ar 155	g tac tgc cag g Tyr Cys Glr 160	ı
ttc tcc agc Phe Ser Ser	ttc aag tad Phe Lys Tyn 165	acc tgc Thr Cys	cag cca Gln Pro 170	tgc cgg gad Cys Arg Asp	c cag cag ato o Gln Gln Met 175	j 528
cta tgc acc Leu Cys Thr i	cga gac agt Arg Asp Ser 180	gag tgc Glu Cys	tgt gga Cys Gly 185	gac cag cto Asp Gln Let	y tgt gcc tgg 1 Cys Ala Trp 190	576
ggt cac tgc a Gly His Cys 1 195	icc caa aag Thr Gln Lys	gcc acc Ala Thr 200	aaa ggt Lys Gly	ggc aat ggg Gly Asn Gly 205	Thr Ile Cys	624
gac aac cag a Asp Asn Gln A 210	gg gat tgc rg Asp Cys	cag cct Gln Pro 215	ggc ctg Gly Leu	tgt tgt gcc Cys Cys Ala 220	ttc caa aga Phe Gln Arg	672
ggc ctg ctg t Gly Leu Leu P 225	tc ccc gtg he Pro Val 230	tgc aca Cys Thr	Pro Leu 1	ccc gtg gag Pro Val Glu 235	gga gag ctc Gly Glu Leu 240	720
tgc cat gac c Cys His Asp P	245	Gin Leu	Leu Asp I 250	Leu Ile Thr	Trp Glu Leu 255	768
gag cct gaa gg Glu Pro Glu G 20	y Ara Leu	Asp Arg (	ge eee t Cys Pro C 265	gc gcc agt Tys Ala Ser	ggc ctc cta Gly Leu Leu 270	816
tgc cag cca ca Cys Gln Pro Hi 275	c agc cac s Ser His	agt ctg g Ser Leu V 280	itg tac a Val Tyr M	tg tgc aag et Cys Lys 285	cca gcc ttc Pro Ala Phe	864
gtg ggc agc ca Val Gly Ser Hi 290	s wah uis	agt gag g Ser Glu G 295	ag agc c lu Ser G	ag ctg ccc ln Leu Pro . 300	agg gag gcc Arg Glu Ala	912
ccg gat gag ta Pro Asp Glu Ty 305	c gaa gat q r Glu Asp v 310	gtt ggc t Val Gly P	he Ile G	gg gaa gtg d ly Glu Val ;	cgc cag gag Arg Gln Glu 320	960
ctg gaa gac ct Leu Glu Asp Le	g gag cgg a ı Glu Arg s 325	agc cta go Ser Leu Al	cc cag ga la Gln Gl 330	ag atg gca t lu Met Ala I	ett gag ggg Phe Glu Gly 335	1008

cct gcc cct gtg gag tca cta ggc gga gag gag gag att Pro Ala Pro Val Glu Ser Leu Gly Gly Glu Glu Glu Ile 340 345

1047

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1 5